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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/589,547

08/16/2006

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EXAMINER

MOON, SEOKYUN

ART UNIT

PAPER NUMBER

2629

MAIL DATE

DELIVERY MODE

06/22/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/589,547	Applicant(s) CLARKE ET AL.	
	Examiner SEOKYUN MOON	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, and 7-13 is/are rejected.
- 7) ☒ Claim(s) 4, 6, 14 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 August 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>09/11/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 2629

DETAILED ACTION

Priority

1. The Applicants' claim for foreign priority under 35 U.S.C. 119(a)-(d) based on an application filed in Great Britain on April 02, 2004 has been acknowledged.

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) filed on September 11, 2006 has been acknowledged and considered by the Examiner. A copy of the form PTO-1449 is included in this correspondence.

Remarks

3. The subject matter of the instant invention might be different and distinguishable from the cited prior arts. However, Examiner respectfully submits that the Applicants have failed disclose such different and distinguishable subject matter in the claims.

Drawings

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitation, "*the materials of each*

Art Unit: 2629

layer being coated onto a support material” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. **Claims 10-12** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 2629

Claims 10-12 recite the limitation "*the conductive liquid*". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

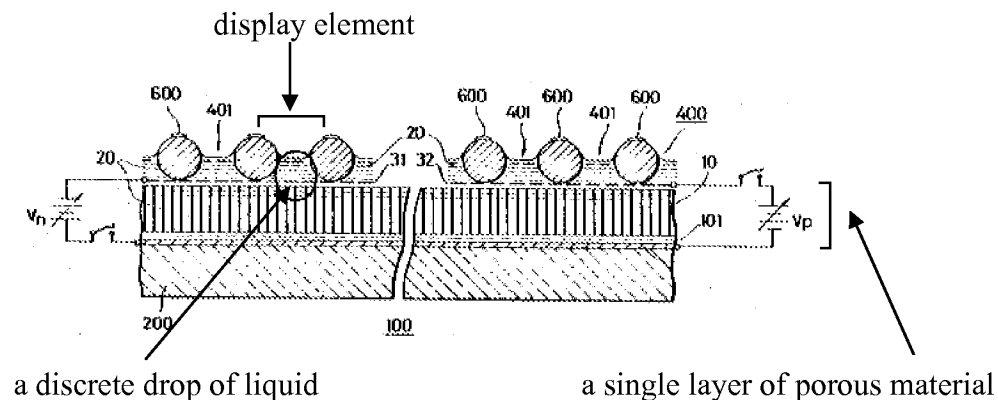
7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claims 1-3, 5, 9, and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,488,785 by Kohashi in view of U.S. Patent No. 6,525,866 by Lin et al. (herein after "Lin").

As to **claim 1**, Kohashi teaches a display element [drawing 1 provided below, which is same as figure 1 of Kohashi] comprising a single layer of porous material, a discrete drop of liquid and means (" V_n " or " V_p ") for connecting a voltage supply to the layer, whereby an application of a voltage between the liquid and the porous layer, the drop of liquid moves into the layer [drawing 2c and col. 3 line 65 – col. 4 line 5], the drop moving back out of the layer upon removal of the voltage [drawing 2a and col. 3 lines 28-35], the movement of the liquid effecting an optical change when viewed from above the porous layer.

Art Unit: 2629

Drawing 1

Kohashi does not teach the layer comprising a plurality of conductive particles covered with a lyophobic and electrically insulating covering.

However, Lin teaches the concept of including a plurality of conductive particles [col. 2 lines 34-38] in a layer of a display [col. 2 lines 26-38].

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the plurality of conductive particles of Lin in the layer of Kohashi, in order to allow the layer of Kohashi to display different colors.

Kohashi as modified by Lin does not expressly teach that the plurality of conductive particles is covered with a lyophobic and electrically insulating covering.

However, Examiner takes Official Notice that it is well known in the art to cover particles with a polymer to prevent the particles from coagulation.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the display element of Kohashi as modified by Lin to cover each of the particles with a polymer, in order to prevent the particles from coagulation.

Art Unit: 2629

As to **claim 2**, Kohashi as modified above teaches that the conductive particles are metallic [Lin: col. 2 lines 34-38].

As to **claim 3**, Kohashi as modified above teaches that the conductive particles are covered with a conductive shell [Lin: col. 2 lines 34-38].

As to **claim 5**, Kohashi as modified above teaches that the insulating covering is a polymer, a polyelectrolyte, a fluoropolymer, a self assembled monolayer or an inorganic shell, as discussed with respect to the rejection of claim 1.

As to **claim 9**, Kohashi as modified above teaches that the porous layer has a pore size greater than 30 nm and less than 2 μm [Kohashi: col. 2 lines 30-33].

As to **claim 13**, Kohashi as modified above teaches that a device including the element includes means for connection (the switching unit shown on figure 1 of Kohashi) of each element to a circuit to create a matrix display [Kohashi: fig. 1].

9. **Claims 7 and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohashi and Lin as applied to claims 1-3, 5, 9, and 13 above, and further in view of Steckl et al. (U.S. Patent No. 7,123,796, herein after “Steckl”).

As to **claims 7 and 8**, Kohashi as modified by Lin does not expressly teach that the drop of liquid is encapsulated by a flexible and a transparent membrane.

However, Steckl teaches the concept of encapsulating a light element (“*photoluminescent layer 24*”) [figs. 1 and 2] of a display by a flexible and transparent membrane (“*transparent scattering layer 26*”) [figs. 1 and 2].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the display element of Kohashi as modified by Lin to encapsulate the drop of the

Art Unit: 2629

liquid by a flexible and transparent membrane, as taught by Steckl, in order to prevent the drop of the liquid being exposed to air.

Allowable Subject Matter

10. **Claims 4, 6, and 14-15** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SEOKYUN MOON whose telephone number is (571)272-5552. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on 572-272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2629

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

June 14, 2010
/Seokyun Moon/
Examiner, Art Unit 2629